THE OCCURRENCE OF HAEMAGOGUS BOSHELLI IN PANAMA

(DIPTERA, CULICIDAE)

By W. H. W. KOMP, *Laboratory of Tropical Diseases, National Institutes of Health, Bethesda, Maryland.*

In view of the renewed interest in yellow fever and its mosquito vectors in Panama, Costa Rica, Nicaragua, and Honduras from 1948 to date (1954), the hitherto unrecorded presence of a species of *Haemagogus* in Panama is here reported.

Haemagogus boshelli was described by E. Osorno-Mesa (1944) from Bahia Solano, Chocó, Colombia, in 1944. This locality is on the Pacific coast of Colombia, south of Cupica, in the Intendencia of Chocó. This part of Colombia has a high rainfall, in some places having over 200 inches annually.

During a survey of the mosquito fauna of a number of the Pearl Islands in the Bay of Panama, the writer also visited a small airfield near the village of Jaqué, on the Pacific coast of Panama, southeast of Guarachiné, about fifty miles from the Colombian border, in the Province of Darién. Three days, July 3, 4, and 5, 1945, were spent collecting mosquitoes at this locality. While the primary consideration was the collection of *Anopheles,* it became evident immediately that *Haemagogus* mosquitoes were present in such numbers as to be a pest. Adults were extremely abundant in the tangle of vines and aroids on fallen trees in a rice-field south of the runway and in nearby forested areas. The females attacked avidly at ground level at all times of the day, even during transient showers. Many were collected in a chloroform-tube while biting, and males were taken in a collecting-net.

Larvae were found in almost every "container-habitat" examined. Among these were tree holes, fallen palm spathes, fruit husks, coconut shells, tin cans, and in water-holding crevices between the buttressed roots of a species of *Ficus* or wild fig. Fortunately, a large series of larvae was obtained, from which adults were reared in the laboratory. It then became apparent, even without microscopical examination, that an aberrant species of *Haemagogus* had been encountered. The claspers (dististyles) of the male terminalia of *H. boshelli* are greatly hypertrophied and exserted, as shown so well in the figure accompanying Osorno's description. Examination of larval skins served to confirm the identification.

At the time of collection, it was thought that the species concerned was *H. chalcospilans* Dyar, which had been collected in numbers a few days previously on San José Island in the Pearl Island group. *H. chalcospilans* somewhat resembles *H. boshelli* in the golden coloration of the coxae and trochanters, but the male terminalia are very different.

Any *Haemagogus* species that bites in numbers at ground level is suspect as a possible vector of jungle yellow fever, particularly if it occurs in an endemic region. Calvo and Galindo (1952) state: "It

should be mentioned that in July 1952 a report was received of approximately 100 deaths, caused by a fever of unknown origin but with a symptomatology similar to that of yellow fever, among the native population of the Alto Bayano and around the source of the Chucunaque River between the Provinces of Panama and Darién.'' This area is not far from the Pacific coast of Darién, where *H. boshelli* was found.

So far as the writer is aware, the only records for *H. boshelli* are those given in Osorno's original description (1944) and by Kumm et al. (1946) (Bahía de Solano, Bahía de Utria, El Valle, and Napipi, Colombia. All these places are on the Pacific coast of the Intendencia of Chocó, in northwestern Colombia. The species is not recorded from Panama by Galindo and his coworkers as late as 1951 (1950,1951). Hitherto the species has been considered rare, and it possibly is confined to regions of high rainfall in northwestern Colombia and along the Pacific coast of Panama near the Colombian border. It is in just such sparsely settled areas, where transport and communication are difficult, that localized outbreaks of jungle yellow fever may occur and be unrecognized by the health authorities. Calvo and Galindo (1952) make a plea for a careful study in the Province of Darién, to determine whether an ''enzootic area'' of yellow fever may exist there.

If such an area is found, *H. boshelli* should be viewed as a possible vector of sylvatic yellow fever, because of its local abundance, and its propensity to bite man at all times of the day.

References

Calvo, A. E., and P. Galindo, 1952. Epidemiology of yellow fever in Panama (1949-1952). Symposium on yellow fever. First Inter-American Congress of Public Health, Havana, Cuba. Mimeographed, pp. 1-14.

Galindo, P., S. J. Carpenter and H. Trapido, 1951. Ecological observations on forest mosquitoes of an endemic yellow fever area in Panama. Am. Jour. Trop. Med. 31:98-137.

————, H. Trapido and S. J. Carpenter, 1950. Observations on diurnal forest mosquitoes in relation to sylvan yellow fever in Panama. Am. Jour. Trop. Med. 30:533-574.

Kumm, H. W., E. Osorno-Mesa and J. Boshell, 1946. Studies on mosquitoes of the genus *Haemagogus* in Colombia. Am. Jour. Hyg. 43:13-28.

Osorno-Mesa, E., 1944. Two new species of *Haemagogus* from Colombia, *H. andinus* and *H. boshelli*. Proc. Ent. Soc. Wash. 46:165-175.

ANNOUNCEMENT

The 12th annual meeting of the American Mosquito Control Association, Inc., is to be held in the Edson Hotel, Beaumont, Texas, February 5-8, 1956. A practical application of mosquito control methods and equipment is being stressed in the program planning.